Max's Market Maths: Introduction to Algebra

Learning objective: To understand how to use simple algebraic expressions to represent missing values and solve one-step equations.

Max the monkey is helping at the local fruit stall. He uses letters to stand for numbers he doesn't know yet. Read the scenarios below and help Max calculate the missing totals using his 'mystery boxes'. Remember to show your working out!

Max is organising the fruit stall. He has several bags of apples. He knows that every bag contains 5 apples, but he doesn't know how many bags there are. He calls the number of bags 'b'. This means he can write the total number of apples as 5b. If he has 3 bags, he calculates 5 x 3 to get 15 apples. Sometimes, Max uses a box symbol to represent a mystery amount. If a box plus £2 equals £7, Max writes it as: ? + £2 = £7. To solve it, he subtracts £2 from £7 to find the mystery number is £5.

Word bank: expression · variable · equation · solve · unknown · total

1. Max has a bag of pears. Each pear costs 30p. If 'p' is the number of pears, write an expression to show the total cost. (2 marks)

2. Max has a mystery box of stickers. If you add 4 stickers to his box, he has 12 stickers in total. Write this as an equation and solve for the mystery box. (2 marks)

3. If 2x = £10, what is the value of x? Show your working out. (2 marks)

4. Max buys 5 oranges at 'y' pence each. The total cost is 50p. Write an equation to represent this and find the value of y. (2 marks)

5. Explain in your own words why we use letters like 'b' or 'x' in maths problems. (2 marks)

Draw: Draw a picture of a 'mystery box' with a question mark on it, surrounded by items that could be inside, such as apples, pencils, or coins.

Extension challenge: Max has a trickier puzzle: 3a + 5 = 20. Can you find the value of 'a'? Explain how you found your answer.